9

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-032796
(43)Date of publication of application : 03.02.1998

(51)Int.CI. H04N 7/025
H04N 7/03
H04N 7/035

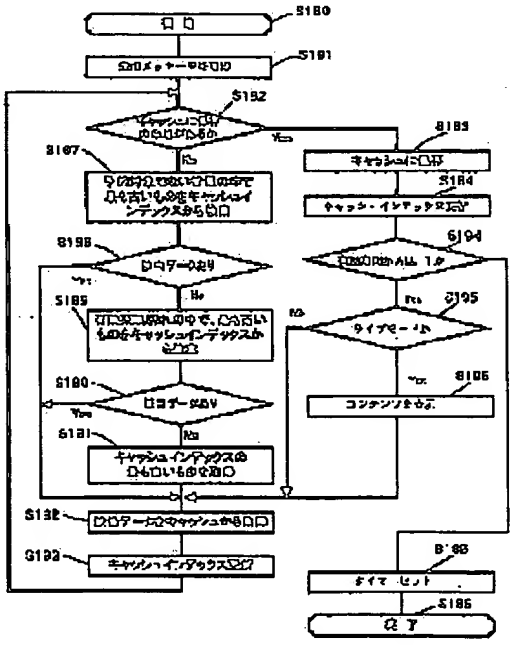
(21)Application number : 08-260032
(22)Date of filing : 30.09.1996

(71)Applicant : INFUOSHITEI:KK
(72)Inventor : MOMOTAKE KUNIHIRO

(30)Priority
Priority number : 08122065 Priority date : 16.05.1996 Priority country : JP

(54) INFORMATION DISPLAY DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To effectively use the capacity of a primary storage means by compulsorily eliminating content information which is not necessary to be stored in the primary storage means from the primary storage means.
SOLUTION: When a message is received, whether a preservation space exists in a cash or not is checked (S180-182). When the preservation space exists, it is preserved in the cash as it is, a cash index is updated and a timer is set (S183-186 and 194). Then, whether a flag showing that data are to compulsorily be eliminated from the cash exists or not is discriminated. When the flag for compulsorily eliminating data from the cash is raised, whether a mode is a live mode or not is discriminated. When it is the live mode, a content is displayed and later data are eliminated from the cash (S195, 196 and 192). When it is not the live mode, data are immediately eliminated from the cash (S195 and 192).



LEGAL STATUS

[Date of request for examination] 17.10.1997
[Date of sending the examiner's decision of rejection]
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
[Date of final disposal for application]
[Patent number]
[Date of registration]
[Number of appeal against examiner's decision of

rejection]
[Date of requesting appeal against examiner's decision of rejection]
[Date of extinction of right]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] A means to receive the broadcast signal with which the information on the timing which displays a contents information and the above-mentioned contents information on display, and the information on the designation about the primary storage of the above-mentioned contents information were multiplexed, The means which takes out the above-mentioned contents information, the information on the above-mentioned timing, and the information on the designation about the above-mentioned primary storage from the broadcast signal which carried out [above-mentioned] the reception, The inside of the above-mentioned contents information by which the primary storage is carried out to the above-mentioned primary-storage means based on a temporary storage means to store the above-mentioned contents information temporarily, and the information on the designation about the above-mentioned primary storage, A means to delete compulsorily the thing corresponding to the information on the designation about the above-mentioned primary storage, The information display characterized by having a means to read the above-mentioned contents information from the above-mentioned primary-storage means based on the information on the above-mentioned timing, and to display a part of above-mentioned contents information on the above-mentioned display at least.
[Claim 2] The information display according to claim 1 which made the above-mentioned broadcast signal the television broadcasting signal.
[Claim 3] The information display according to claim 1 or 2 which inserted and multiplexed the above-mentioned contents information, the information on the above-mentioned timing, and the information on the designation about the primary storage of the above-mentioned contents information during the vertical retrace line of a television broadcasting signal.
[Claim 4] The information display according to claim 1, 2, or 3 which made the information on the above-mentioned timing the display time of the above-mentioned contents information.
[Claim 5] The above-mentioned display time is an information display according to claim 4 which expresses with the relative time on the basis of the time which received the above-mentioned contents information.
[Claim 6] The information display according to claim 5 which deleted the contents information corresponding to the above-mentioned timing information from the above-mentioned primary-storage means when the above-mentioned timing information was used as an information about the above-mentioned primary storage and the above-mentioned timing information took a predetermined value.
[Claim 7] The information display according to claim 6 which made the above-mentioned predetermined value the relative time of all ones.
[Claim 8] A part of above-mentioned contents information [at least] deleted from the above-mentioned primary-storage means is the information display according to claim *, *, *, *, *, *, or * deleted from the above-mentioned primary-storage means after making it display on the above-mentioned display.
[Claim 9] In the computer program product for information displays used in order to display a part of contents information [at least] multiplexed by the broadcast signal The step which receives the broadcast signal with which the information on the timing which displays a contents information and the above-mentioned contents information on display, and the information on the designation about the primary storage of the above-mentioned contents information were multiplexed, The step which takes

out the above-mentioned contents information, the information on the above-mentioned timing, and the information on the designation about the above-mentioned primary storage from the broadcast signal which carried out [above-mentioned] the reception, The inside of the above-mentioned contents information by which the primary storage is carried out [above-mentioned] based on the step which stores the above-mentioned contents information temporarily, and the information on the designation about the above-mentioned primary storage, The step which deletes compulsorily the thing corresponding to the information on the designation about the above-mentioned primary storage, The step which the above-mentioned contents information by which the primary storage is carried out [above-mentioned] based on the information on the above-mentioned timing is read [step], and displays a part of above-mentioned contents information on the above-mentioned display at least to perform a computer The computer program product for information displays characterized by using.

[Translation done.]

* NOTICES *

Field

[0001] [The technical field to which invention belongs] This invention can be made to carry out the primary storage especially of the contents information efficiently about the information-display technique and equipment which carry out graphic display of the contents information multiplexed by television broadcasting etc., for example, the contents information on internet, and the contents information relevant to this.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

Technique

[0002] [Description of the Prior Art] In recent years, the service using internet has come to offer many things. An user can access the server which offers a service on internet, and can receive a service of information offer etc. By the way, the service on internet is materialized based on communications processing, and had to set up the communication channel between the service provider and the service receiver fundamentally, and the service provision had a quantitative constraint.
[0003] On the other hand, a broadcast has the merit which can provide many and unspecified persons with an information at once, as long as a broadcast Hertzian wave arrives. This invention tends to multiplex the contents information on internet, or the information relevant to this to television broadcasting, and tends to offer the technique with which many addressees were suitable for the ability to be made to carry out a deployment in the contents information on internet.
[0004] In addition, there is teletext technique as technique relevant to this invention. Teletext technique inserts alphabetic information in the vertical-retrace-line term of television broadcasting, and performs the teletext other than a usual broadcast.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

TECHNICAL PROBLEM

0005] [Problem(s) to be Solved by the Invention] This invention is made in consideration of the above situation, avoids that the primary-storage section is occupied to the contents information which does not need to carry out a primary storage in case the contents information multiplexed and transmitted to the broadcast signal or its part is displayed, and aims at offering the information-display technique in which the capacity of a primary storage can be used effectively.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

MEANS

[0006] [Means for Solving the Problem] A means to receive the broadcast signal with which the information on the timing which displays a contents information and the above-mentioned contents information on display, and the information on the designation about the primary storage of the above-mentioned contents information were multiplexed to an information display in this invention in order to attain the above purpose, The means which takes out the above-mentioned contents information, the information on the above-mentioned timing, and the information on the designation about the above-mentioned primary storage from the broadcast signal which carried out [above-mentioned] the reception, The inside of the above-mentioned contents information by which the primary storage is carried out to the above-mentioned primary-storage means based on a temporary storage means to store the above-mentioned contents information temporarily, and the information on the designation about the above-mentioned primary storage, It is made to establish a means to delete compulsorily the thing corresponding to the information on the designation about the above-mentioned primary storage, and a means to read the above-mentioned contents information from the above-mentioned primary-storage means based on the information on the above-mentioned timing, and to display a part of above-mentioned contents information on the above-mentioned display at least.
[0007] Since it is made to delete the contents information without the need of carrying out the store to the primary-storage means from the primary-storage means compulsorily according to this configuration, the deployment of the primary-storage means can be carried out.
[0008] Moreover, the above-mentioned broadcast signal can be made into a television broadcasting signal in this configuration. Moreover, the above-mentioned contents information, the information on the above-mentioned timing, and the information on the designation about the primary storage of the above-mentioned contents information are inserted in the vertical-retrace-line term of a television broadcasting signal, and can be multiplexed.
[0009] Moreover, let the information on the above-mentioned timing be the display time of the above-mentioned contents information. Furthermore, the above-mentioned display time can be expressed with the relative time on the basis of the time which received the above-mentioned contents information.
[0010] Moreover, when the above-mentioned timing information is used as an information about the above-mentioned primary storage and the above-mentioned timing information takes a predetermined value, the contents information corresponding to the above-mentioned timing information can be deleted from the above-mentioned primary-storage means. In this case, let the above-mentioned predetermined value be the relative time of all ones.
[0011] Moreover, after displaying on the above-mentioned display a part of above-mentioned contents information [at least] deleted from the above-mentioned primary-storage means, it can be deleted from the above-mentioned primary-storage means.
[0012] Moreover, this invention is also realizable as a program product.
[0013]
[The mode of implementation of invention] Hereafter, the example of this invention is explained with reference to a drawing.
[0014] Drawing 1 shows the schema of the broadcast and information processing system with which this example is applied, and the broadcast server 11, the terminal for a contents manufacture 12, the transmission facility 13, etc. are formed in the television broadcasting office 10 in this drawing. The

broadcast program created by the broadcast server 11 is broadcast through a transmission facility 13. In this example, the contents information signal multiplexed during the perpendicular baseline of a usual television signal and this television signal is contained in the sending signal of a broadcast program. In a receiving side, a broadcast signal is received through an antenna (not shown) etc. and a broadcast signal is reproduced with the personal computer which has a television receiving set or a television television function. The personal computer 20 which has a television television function drawing is shown as an example. A personal computer 20 has the function which restores to a broadcast signal, and reproduces a television picture image using all or a part of screens based on the signal to which it restored. Moreover, the personal computer 20 may be connected to the telephone line through the modem 21 like illustration. A personal computer 20 is connected to internet (minding a provider's communication channel, if required) 30 through a modem 21 etc., and various servers are connected to this internet. In this example, the WWW server 31 for information offer is connected.

[0015] In addition, it is used for record-medium 20a, such as a floppy disk and CD-ROM, installing in a personal computer 20 the Bitcast software 48 (referring to the drawing 8) mentioned later. Moreover, device 20b, such as a tuner of data-logging equipments, such as CD-ROM driving gear and DVD (digital video disc) driving gear, BS broadcast, CS broadcasting, and a CATV broadcast and a set top box, supplies data to a personal computer 20. Although external [of the device 20b] is carried out to the personal computer 20 in this example, you may be made to build a corresponding card and corresponding equipment in a personal computer 20.

[0016] In this example, a broadcasting station 10 receives the web information (web page) described by HTML (hypertext markup language) from WWW server, and it carries out multiplex to the broadcast signal of a usual broadcast program, and it broadcasts it. In this case, it may not transmit, using a web information directly, but you may process and transmit at the terminal for a contents manufacture 12, and it may be made to transmit the information individually prepared at the terminal for a contents manufacture 12. About the informational format and the technique of multiplexing of carrying out multiplex and transmitting, it mentions later.

[0017] How to multiplex an information to television broadcasting next is explained. A contents information is inserted and multiplexed during the vertical retrace line of a television signal. concrete -- the Telecommunications Technology Council -- it carries out using the multiplexing technique (:Vertical Blanking Interval usually called VBI method) of the digital information specified by the reply consultation 83 in part

[0018] That is, the fraction which has 262.5 horizontal scanning terms (525 per frame) per one field, among these is equivalent to 21 of the start constitutes a vertical-retrace-line term, and a television signal is not expressed as a usual television receiving set. Drawing 2 shows the role of these 21 horizontal scanning terms (the scanning interval of the beginning of 22 Motome's picture is also shown). In addition, in drawing, the horizontal scanning term of 263-283 of an odd number field is counted per frame, and is set to 1-21 per field. The data for character multiplexing are multiplexed during 14, 15, 16, and 21 (276, 277, 278, and 283) Motome's horizontal scanning so that clearly from drawing 2 . On the other hand, it is released for digital broadcasting (for VBI) during 10, 11, 12, and 13 (272, 273, 274, and 275) Motome's horizontal scanning, and is made to multiplex a contents information during [for this VBI] the horizontal scanning in this example.

[0019] Drawing 3 shows a mode that the signal for VBI is multiplexed, changes it into a video signal, and inserts a data line.

[0020] Drawing 4 shows the specification of the data transmission of VBI method. drawing 4 -- setting -- a hierarchy 1 -- the electrical and electric equipment -- a physical specification is specified According to this specification, the fixed field within a horizontal scanning term is sampled by 296 pieces. 0 level of VBI signal is the pedestal level (black level) of a video signal, and 1 level is 70% of the level of the white level of a video signal.

[0021] A hierarchy 2 is a data link layer and a signal is treated as logical data of 1 and 0 here. A series of data transmitted by one horizontal scanning line are called data line. A data line consists of a data packet and the data packet is protected from the error by the error correcting code (272,190) (shortening difference set cyclic code). In a receiving side, a bit synchronization is obtained on the basis of a clock line, and start of a data block can be detected on the basis of a framing code.

[0022] A hierarchy 3 mainly shows the function of a prefix. A prefix information mainly consists of a

logical channel information and block link information. It is classified by the logical channel to which a data block belongs according to a logical channel information. Block link information connects a related data block by this including informations, such as start of a block link, and an end, and generates the data group which is a mass of meaningful data. In this example, this data group is called message and it considers as a batch.
[0023] The contents information next transmitted by VBI method as mentioned above is explained. Although the contents information transmitted is mainly a web information, it may be an information on what format. For example, you may be the code of a computer program.
[0024] Drawing 5 shows the data format of the batch (message) of a contents information. Below, this is called Bitcast-HTTP format and it abbreviates also to B-HTTP (Bitcast is the trademark of an incorporated company information city.). HTTP is the abbreviated name of hypertext markup language. In drawing 5 , there are ** content type and a ** group information type in a B-HTTP format. A content type does not aim at transmitting the content itself, and a group information type transmits the information which carries out grouping of two or more contents, without aiming at a transmission of the content [itself]. The message of a content type format will be called content message, and the message of a group information type format will be called group message.
[0025] A content message is independent or is transmitted with a group message. The group identification descriptor of the content message transmitted independently serves as an all zero (a group and irrelevance are shown). When a content message is transmitted with a group message, a group message is transmitted first and the contents message of the number directed by this group message is transmitted one by one. In this case, all the identifiers of a content message are the same as that of the identifier of a group message. The information (for example, information specified with the life start-time element mentioned later) already directed in the group message is [be / under / content message / setting / it] omissible.
[0026] The B-HTTP format consists of a field of the separator (all zero) which ****s between the field (a mold identifier is included) of a version, the field of a group identification descriptor, the field of a B-HTTP element, the field of the content body, the content body, and B-HTTP elements in drawing 5 . The main fields are as follows.
(1) 4 bits of version:high orders are set to "0000." It is used at the time of protocol change. 4 bits of low order distinguish a content message and a group message.
(2) It is 32-bit ID for discriminating group identification descriptor:********. When it considers as an all zero in a content type, it is shown that it is the information which became independent of a group.
(3) Give the additional information in which B-HTTP element ellipsis is possible. With reference to the drawing 6 and the drawing 7 , it mentions later.
(4) Specify the number of the content messages which belong to a content number:group.
(5) Store the content of original in a content message described by content body:HTML (structured-statement document), GIF (picture image), JPEG (picture image), etc.
[0027] The detail of a B-HTTP element is explained below. The drawing 6 and the drawing 7 show the example of this element. The element consists of an identifier, a length, and the body in drawing. The content is explained below.
(1) It is based on a MIME HDR:HTTP protocol (multi-******** Internet mail extension). The modality of content etc. is described.
(2) Correspond to the file name of identifier element:URL (rule of naming of the resource on a uniform resource locator and internet). By the content message which became independent of a group, it specifies by the full path. By the group message, it specifies by the directory name.
(3) Specify compressed format for a content compression specification element:content. It is shown that the content is not compressed in the case of a zero.
(4) Use for addition of a keyword element:keyword. It uses, when performing reference, clipping, etc. which are mentioned later.
(5) Store the information on the icon displayed in order to notify a televiewer of having received the predetermined [icon element:] message (reception on appearance), the part, for example, the lower part, of the display screen. In addition, the message is actually received in advance of the start time of the life mentioned later, and the start time of a life corresponds to the apparent receipt time. Thus, since it is, the large message of the amount of data fully also takes a lead time, and becomes possible [a

transmission and receiving].
(6) It is the message which synchronized with this broadcast (usual content of a broadcast) of live mode element:television broadcasting, and it is shown that it is the information which should be displayed on specification time (start time of a life).
(7) The message to carry out and to carry out displays the time which becomes effective at the relative time from the message receipt time life start-time element (relative time):correspondence. In the case of the message in the live mode, the time which should carry out the automatic display of the content of a corresponding content message is stored.
[0028] In addition, you may be made to express not as relative time but as absolute time. In this case, a corresponding content message adds a frame number and notifies the time which becomes effective to for example, UTC (universal time coordinated) format.
(8) Specify a life with the number of seconds from a life element:life start time. At a terminal, as for this term, the minimum also limits a message to a cache (cache in direct access storage devices, such as a hard disk). In addition, in this example, the life element of an all one (all the bit positions take 1) directs to delete a message from a cache compulsorily. That is, the effective element of an all one is used as a flag which shows the deletion from a cache. Of course, a peculiar element can also be used as this flag, and other specific bit patterns of an effective element can also be used, and the specific bit pattern of the element of further others can also be used.
(9) Display the address information of the resource of a support element:link place by URL. For example, when the icon is displayed using the icon element of a message, if the icon is clicked, the resource of the link place specified with a support element can be accessed. About this, it mentions later with reference to the drawing 20 and the drawing 21 . A display of a support element is "HTTP://www.infocity.co.jp/dir1/index.html" using URL. "HTTP" is a transfer protocol here, "www.infocity.co.jp" is a domain name, and "dir1 / index.html" is pathnames. In addition, in this example, URL is extended so that the information from recording devices, such as a broadcast signal from a broadcasting satellite or a communication satellite, cable broadcasting of CATV, CD-ROM, DVD, and a hard disk, can also be accessed. For example, when acquiring HTML data from the 11th channel of BS broadcast, URL serves as "HTTP://bitcast/BS11 / filename.html." "bitcast" is a surrogate server here. "BS11" expresses a media and is equivalent to a directory.
(10) Express the right to various services, such as a discount service of coupon element:on-line shopping.
(11) Specify the ornament information on arrangement of the content displayed by the layout element:browser itself or the browser, a color, a configuration, a background, and font others.
(12) Display the technique of protection, such as encryption element:encryption and scramble processing.
(13) Use for displaying a menu from a menu element:icon. Two or more lengths of the length of an icon information, an icon information, and a support element and groups of a support element (link place) are specified.
[0029] In the above, the message multiplexed and transmitted to the content of this broadcast was explained.
[0030] Below, the configuration for receiving a contents information in the personal computer 20 of drawing 1 is explained with reference to drawing 8 . In addition, in drawing 8 , the personal computer 20 has the television-signal tuner 41, the wave equal circuit 42, A/D converter 43, the packet extraction section 44, the program data generation section 45, the B-HTTP service section 46, Bitcast browser section 47, etc. In this example, the B-HTTP service section 46 and the Bitcast browser 47 are offered as a Bitcast software product 48.
[0031] The tuner section 41 tunes in the television signal modulated and transmitted, and gets over. The wave equal circuit 42 rectifies turbulence and signal level of the wave of a television signal. A/D converter 43 samples the signal of a specific horizontal scanning term per 1 / 364fH (fH is horizontal scanning frequency) second, and generates digital information. A/D converter 43 is equivalent to the physical layer (the 1st layer) of the ISO reference model standardized in ISO (International Organization for Standardization).
[0032] The packet extraction section 44 processes synchronously per a bit and byte about the digital information sampled by A/D converter 43 (framing processing), extracts a data-packet information, and

performs a detection of a transmission error, and a correction. The packet extraction section 44 corresponds to the data link layer (the 2nd layer) of the ISO reference model.
[0033] The program data generation section 45 classifies and connects the extracted packet by the packet associated by the transmitting side, and generates a data block. This program data generation section 45 is equivalent to the Network layer (the 3rd layer) and transport layer (the 4th layer) of the ISO reference model. In addition, the above blocks 41-45 serve as the configuration with the same said of the terminal for VBI.
[0034] The data block for programs generated as mentioned above is supplied to the B-HTTP service section 46. The B-HTTP service section 46 processes a message (data group) according to the convention of a B-HTTP format explained in drawing 5 , the drawing 6 , and the drawing 7 . The detail is later explained in detail with reference to the drawing after drawing 11 . Bitcast browser section 47 displays a contents information based on processing in the B-HTTP service section 46. This browser section 47 provides an user with the interface which was similar with the usual browser which displays WWW page of internet.
[0035] The hardware of the above B-HTTP service section 46 and the browser section 47, and the personal computer 20 and the relation with an operating system are as being shown in drawing 9 . Moreover, an actual package is as being shown in drawing 10 . In the example of a package of drawing 10 , Bitcast layer corresponds communicative multicasting and the function of a broadcast of VBI by the one same layer, and can treat a broadcast and communicative multicasting identically. Moreover, a socket Winswock2 is extended so that not only the protocol of TCP/IP but the protocol of Bitcast layer can be treated, and finally it can treat a communication and a broadcast now on the same level.
[0036] Drawing 11 shows the example of a configuration of the B-HTTP service section 46 and Bitcast browser section 47, and the B-HTTP service section 46 consists of the B-HTTP protocol analysis section 50, a cache 51, a sequence control section 52, etc. in this drawing. The B-HTTP protocol analysis section 50 analyzes the message received from the program data generation section 45 based on a B-HTTP protocol, and passes it to a cache. A cache 51 accumulates the information received from the protocol analysis section 50. The sequence control section 52 manages the correspondence relation of the time and content about the information (real-time information) with the need of displaying on the time beforehand decided among the informations stored in the cache 51. And the sequence control section 52 supervises the content of a cache 51, and notifies the latest time and the latest content to the browser section 47.
[0037] The browser section 47 consists of the sequence control section 53, the contents analysis section 54, a contents display 55, an icon display 56, etc. The sequence control section 53 memorizes the latest schedule, supervises the timer which it has in the interior, calls the B-HTTP service section 46 to appointed time, and acquires a content message. The contents analysis section 54 analyzes the acquired content message. For example, analysis of the document described by HTML syntax etc. is performed. The contents display 55 displays based on the analysis result of the contents analysis section 54. The icon display 56 displays the icon which shows having received the message on a screen.

[0038] A screen display can be performed as shown in drawing 12 . In this example, the elements displayed on a screen are web screen 47a and television screen 47b. Web screen 47a has the same appearance and same user interface as a WWW browser of internet. The display mode of a screen is the following three and can be changed.
** Display a television display-mode:television screen on a full screen.
** Display a web display-mode:web screen on a full screen.
** Display a television screen on a part of compound display-mode:web screen.
A reception of the message containing an icon information displays the icon for example, corresponding to the screen lower part on a life start time. If an icon is clicked when the content body displayed on a browser is contained in the message, the contents body will be displayed on a web screen. If it is a television display mode at this time, the mode will shift to the compound screen mode. The contents body is displayed in the web mode in which a web screen is displayed, or a compound display mode. In this case, an user can choose the update display mode of automatic, and a manual display mode. In the update display mode of automatic, a display of the present content message is updated by display of the content message in the live mode with which the life start time newly came. In a manual display mode,

the spool of the content message in the live mode with which the life start time came is carried out, and it chooses and displays in sequential or a dialog based on user operation.
[0039] Next, a detailed operation is explained focusing on the B-HTTP service section 46.
[the data structure of a cache index] -- the data structure of the index used for a management of the message received first is explained The message will be memorized by the cache (hard disk) if a message is received. The store file serves as the message unit. And in order to manage the message, an index element is generated and memory memorizes. An index element is shown in drawing 13 . The index element has each field of ** file name (identifier element), ** term of validity (universal time coordinated), ** store flag (it turns ON after a store of down-load processing), ** live flag (it is shown whether it is the live mode), ** icon flag (the existence of an icon element is shown), and ** keyword.
[0040] The point of the index element is carried out with the index list of two kinds, and it is used for LRU (Least Recently Used) management of a cache, and a display management of a web page and an icon. Drawing 14 uses a both-directions pointer in the order of an access, and forms a list. Thereby, a management of the message in a cache is manageable with LRU rule. Moreover, as shown in drawing 15 , a list can be formed in the order of display timing (effective-time start time) using the both-directions point. If this list is used, a message is taken out in the order of display timing, and a web page etc. and an icon (at the time of the live mode) can be displayed.
[0041] [Web screen-display] view 16 shows the operation which displays the information which should be automatically displayed on specification time by the live mode element on a web screen. In this drawing, a timer (not shown) starts a web display action with reference to a life start time ('S' of drawing 6) (S101). If it does so, one index element will be taken out in the order of display timing (S102), and it will judge whether it is the live mode using a live flag (S103). If it is not the live mode (in for example, the case of the message for a down load), it will end, without processing as it is. In the case of the live mode, a message is read from a cache, HTML document is analyzed, and it displays on a web screen (S104, S106, S107).
[0042] Ejection of a layout information is performed at step S105. The layout of a browser is changed when there is a layout information. As shown also in drawing 17 , arrangement of the contents displayed on the browser itself or a browser, a color, a configuration, a background, a font, and the ornament informations on other are included in the information on the layout of a browser. For example, as shown in drawing 17 , it can change into a layout which is shown in drawing 18 by specifying it as x= 20, y= 20, h= 240, and w= 320 about the television screen (compound display mode) displayed in a browser.
[0043] [Icon display] view 19 shows the operation which displays an icon on specification time. It is not displayed that the web screen is not opening the display of the web explained previously. The icon explained here is displayed irrespective of whether the web screen is open. In drawing 19 , a timer (not shown) starts an icon display action with reference to a life start time in this drawing (S111). If it does so, one index element will be taken out in the order of display timing (S112), and it will judge whether there is any icon element with reference to an icon flag (S113). If there is no icon element, it will end, without processing as it is. When there is an icon element, a message is read from a cache, an icon information is taken out, and it displays on a screen (S114, S116, S117).
[0044] An icon can be displayed by various modes and various arrangement. Moreover, when an icon increases, various technique can be adopted also about how it eliminates. It arranges linearly to the dock field of the screen lower part, and arranges to it, if an arrangement position fills, it may eliminate, it scrolls and may enable it to choose, and it divides into two or more pages, and you may enable it to choose.
[0045] In addition, the layout information on an icon is taken out in step S115, and the layout of an icon can be changed now.
[0046] [Icon click processing] view 20 and the drawing 21 show the operation when clicking the icon on a screen. In drawing 20 , the message name applicable to an icon is acquired according to a click of an icon, and a cache is searched (S121, S122, S123). If there is a message name which returns an error, is completed (S124, S125), and corresponds if there is nothing applicable to a cache, it will investigate whether there is any support element (S126). A support element specifies the source of data. There are the broadcast signal from the server, the broadcasting satellite, and communication satellite on internet, a cable-broadcasting signal of CATV, CD-ROM, DVD, a hard disk, etc. in the source of data.
[0047] When there is a support element, it distinguishes whether the source of corresponding data is

required for being a server on internet, i.e., TCP/IP connection, (S127). When a data source is a server on internet, the server on internet is accessed and an information is taken out. That is, TCP/IP connection is made, and HTML document (data) is demanded and it receives (S128, S129, S130). Then, received HTML document is analyzed and it displays on a web screen (S131, S133, S135). In addition, a support element is "HTTP://www.infocity.co.jp/dir1/index.html" in this case.
[0048] In step S127, when the source of data is not a server on internet (i.e., when it is the service using the broadcast signal from a broadcasting satellite or a communication satellite, the cable-broadcasting signal of CATV, and the cable, CD-ROM, DVD, a hard disk, etc.), it connects with streams, such as a broadcast signal from a broadcasting satellite or a communication satellite, a cable-broadcasting signal of CATV, CD-ROM, DVD, and a hard disk, or a stream is opened, and processing after step S129 is performed after that. In addition, by being distinguished, whether in step S132, it can display by the browser displays a dialog, when it cannot display, and the store to a file is made to be performed (S134). In addition, in the case of such a data source, a support element becomes with "HTTP://bitcast/BS11 / filename.html." A device is driven according to the source identifier 11 (the 11th channel of BS broadcast), for example, BS, of a media (data source) applicable to a directory, and data are acquired.
[0049] The information transmitted by this broadcast is sufficient as the information from the broadcast signal from the broadcasting satellite and communication satellite used as a data source, and the cable-broadcasting signal of CATV, and the information multiplexed by this broadcast is sufficient as it.
[0050] When there is no another side support element, a menu element and an encryption element are investigated. Here, processing relevant to a menu element is explained first, and processing in case there is an encryption element is mentioned later. When there is a menu element, a menu is displayed (S137, S152) and the item (icon) of a menu is chosen, it returns to step S123. When the item of a menu is not chosen, it ends (S154). Fine selection can be performed by using a menu. For example, when the icon expresses an advertiser's business firm, a menu is used and each product can be expressed. It is also possible to express a menu with two or more hierarchies.
[0051] In step S137, when there is no menu element, it investigates whether there is any encryption element. When there is no encryption element, MIME element of a data block is acquired and the modality of contents body is investigated (S139). When an element is "text" or "html", it analyzes as a HTML document, and it displays on a web screen (S140-S143). When an element is "program", it considers that the contents body is a program and it is performed (S144-S146).
[0052] An explanation of processing in case there is a [charged broadcast] encryption element is preceded, and the structure of a charged broadcast realized using an encryption element is explained briefly. A charged fraction is a contents information here. This broadcast itself does not ask whether to be a charge or not.
[0053] In addition to the broadcast server 11, in drawing 22 , the key server 14 is formed in a broadcasting station 10. An user's personal computer 20 and key server 14 have come make dial-up connection through internet 30.
[0054] For using a charged broadcast of a contents information, it is necessary to perform a management organization and contracts, such as a broadcasting station. After contracting, an user acquires user ID and a password. An acquisition application of user ID and a password is performed by a document, electronic mail, facsimile, the web, in addition the technique that the management organization defined, and a notice of user ID and a password is also notified by the same technique.
[0055] You have to acquire the amplifier ******** information, i.e., a key information, to carry out amplifier ******** of the protected data which are furthermore transmitted by charged broadcast. A key information is acquirable from the key server 14 through TCP/IP connection. User ID and a password are needed for acquisition of a key information.
[0056] Moreover, the status of use of the key information by the user is recorded on a personal computer 20, is notified to the key server 14 side for every fixed term, and is made into the footing of accounting. The routine of a notice of the information on use of the key information by the user may be automatically started by the user side, and the key server 14 may be made to carry out polling.
[0057] The check with a [check of life of key] key information effective now is performed at the time of browser activation, and if required, an effective key information is acquirable through internet. Drawing 23 shows this processing. In drawing 23 , activation of a browser checks a life about each of the key

registered as under use (S160, S161). The store of the life is carried out about each of the key registered as under use for the check. If it is within a life, it will end as it is (S162, S166). In not being within a life, TCP/IP connection is made at the key server 14, and it performs the acquisition procedure of a key (S164, S166). In not acquiring or acquiring an effective key by a certain ground, the message of the purport is displayed and it ends processing (S165, S166).
[0058] [the decode by the encryption element] -- amplifier ******** of the content next protected is explained In step 137 of drawing 20 , when there is an encryption element, it progresses after step S147 of drawing 21 . That is, it investigates whether the key information for solving protection is effective, such as encryption, scramble processing, etc. which an encryption element specifies, (S147). If effective, amplifier ******** of the protected contents, such as encryption etc., will be carried out, and they will be memorized (S148, S149, S150). When a key information is not effective, the purport is displayed on an user and it ends (S151). One with two or more arbitrary protection technique can be specified by the encryption element, and two or more protection technique can be coped with from two or more data feeders.
[0059] [Update of cache index] view 24 shows an update process of the cache index when accessing a message. Thereby, the management data of the cache management of LRU rule is maintainable. In drawing 24 , if a message is accessed, the accessed identifier of a message will be acquired (S171, S172). And the cache index of the list of drawing 14 is searched and the corresponding index element is transposed to a head position (S173-S176).
[0060] [Operation at time of data reception] view 25 shows the operation at the time of a data reception. In this drawing, a reception of a message confirms whether store room is in a cache (S180-S182). If there is store room, it will save into a cache as it is, a cache index will be updated, a timer will be set, and processing will be finished (S183- S186, S194).
[0061] In addition, in step S194, it is distinguished for a life element whether it is "ALL1." That is, it is distinguished whether there is any flag which shows deleting data from a cache compulsorily. When the flag stands so that data may be eliminated compulsorily in "ALL1" (i.e., a cache), it distinguishes whether it is the live mode, and if it is the live mode, a contents will be displayed and data will be deleted from a cache after that (S195, S196, S192). When it is not the live mode, data are immediately deleted from a cache (S195, S192). By doing in this way, it is avoidable that a cache fills with the data without the need of carrying out the cache.
[0062] When there is no store room in a cache in step S182, a data block is deleted according to a predetermined rule. The oldest thing of the information which corresponds to a reservation object (for example, that the keyword specified by the user is included **** message for a down load) first and which does not come out is searched from a cache index (S187). If there are some corresponding, the message will be deleted from a cache and a cache index will be updated (S192, S193). When there is nothing corresponding, the oldest thing in the message of expiration is searched using a cache index (S189, S190). If there are some corresponding, the data will be deleted and a cache index will be updated (S192, S193). When there is also no message of a term-of-validity piece, the oldest thing in a cache index is taken out, the data is deleted from a cache, and a cache index is updated (S190-S193).
[0063] A new message is saved after deleting a message old as mentioned above as required (S183-S186).
[0064] In the above cache management, clipping of the message (reservation) applicable to the keyword specified by the user can be carried out.
[0065] In addition, although a reception of data is performed through the tuner 41 of drawing 8 , data can be acquired from other medias, such as BS broadcast, CS broadcasting, a CATV broadcast, and a recording device. In this case, if the B-HTTP element which changes so that data may be acquired from other medias is newly set up, it can consider as the trigger of data acquisition by making the B-HTTP element for a change multiplex in a B-HTTP broadcast signal. The acquired data are received like drawing 25 and a display of data etc. is performed after that.
[0066] [Reference display] view 26 shows the operation which searches and displays a message. In drawing 25 , specification of reference displays a reference dialog (S201, S202). If retrieval by keyword is specified using this dialog, a cache index will be searched and a reference result list will be changed into HTML document (S203, S204, S206). Moreover, when retrieval by keyword is not specified, the full-text search of the data block of a cache is carried out, and a reference result list is changed into HTML

document (S205, S206). Thus, obtained HTML document is analyzed and it displays on a web screen (S207-S209).
[0067] [Down-load] view 27 shows the operation which downloads the data block which received. The down load itself is a usual operation, it displays the list of all or a part of messages in a cache first, displays a file dialog, receives designation of a down load, reads it from a cache, and is saved at a file (S211-S215). The store flag of the index element of a data block saved after this at the file is rewritten to ON, and it displays that the concerned data block may be deleted (S216, S217).
[0068] [Operation after button click] view 28 shows the operation which accesses the following page which clicked the button of a web page. According to a click of a button, the information corresponding to a button investigates whether it is the support of the bit cast (S221, S222). If it is not the support of the bit cast, the server on internet will be accessed and an information will be taken out. That is, TCP/IP connection is made, and HTML document is demanded and it receives (S227, S228, S229). HTML document received after this is analyzed and it displays on a web screen (S230, S231, S232).
[0069] In addition, in addition to the server on internet, you may be made to acquire an information from the broadcast signal from a broadcasting satellite or a communication satellite, the cable-broadcasting signal of CATV, CD-ROM, DVD, a hard disk, etc. like the case of drawing 20 also in this case. In this case, what is necessary is just to transpose step S227 - step S232 to steps S127-S136 of drawing 20 . A detailed explanation is not repeated.
[0070] In the case of the support of the another side bit cast, a message is read from a cache, HTML document is analyzed, and it displays on a web screen (S223-S226).
[0071] An explanation of an example is ended above. In addition, this invention is not limited to an above-mentioned example, and can be variously changed in the domain which does not deviate from the meaning. For example, in the example, as a terminal by the side of an user, although the personal computer was used, the television receiving set made intelligent is sufficient, and a set top box etc. is sufficient. Not only an NTSC color TV system but SECAM and a PAL system are sufficient as the method of television broadcasting. Moreover, it is applicable not only to television broadcasting but a radio broadcasting. Moreover, the thing not only using terrestrial broadcasting but satellite broadcasting is sufficient also as television broadcasting. Moreover, cable broadcasting is sufficient. Moreover, multiplexing can also adopt various methods and can apply frequency multiplex etc.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

Effect

[0012] [Effect of the Invention] As explained above, in case according to this invention a contents information can be multiplexed and sent to a broadcast signal, a contents or its part can be displayed on desired time and the primary storage of the contents information is moreover carried out, the primary storage of a contents information can be efficiently performed by deleting compulsorily the contents information which does not need to carry out a store to a primary storage from a primary storage.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the ** type view showing the example of this invention collectively.
[Drawing 2] It is drawing explaining the data multiplex of VBI used in the above-mentioned example.
[Drawing 3] It is drawing explaining the data multiplex of VBI used in the above-mentioned example.
[Drawing 4] It is drawing explaining the data multiplex of VBI used in the above-mentioned example.
[Drawing 5] It is drawing explaining a format of the data group (message) of the above-mentioned example.
[Drawing 6] It is drawing explaining the example of the B-HTTP element of drawing 5 .
[Drawing 7] It is drawing explaining the example of the B-HTTP element of drawing 5 .
[Drawing 8] It is drawing showing the package configuration of the personal computer of drawing 1 with functional block.
[Drawing 9] It is drawing explaining the layered structure of the package configuration of the personal computer of drawing 1 .
[Drawing 10] It is drawing showing the example of the package configuration of the personal computer of drawing 1 .
[Drawing 11] It is drawing explaining the example of a configuration of the B-HTTP service section 46 of drawing 8 , and the Bitcast browser 47.
[Drawing 12] It is drawing showing an example of the screen displayed by Bitcast browser.
[Drawing 13] It is drawing showing the example of a configuration of the index element used for the cash advance of a message.
[Drawing 14] It is drawing explaining the list for caches which carries out the point of the above-mentioned index element.
[Drawing 15] It is drawing explaining the list for a display which carries out the point of the above-mentioned index element.
[Drawing 16] It is a flow chart explaining display actions, such as a web page.
[Drawing 17] It is drawing showing an example of a layout element.
[Drawing 18] It is drawing showing the layout of Bitcast browser corresponding to an example of the layout icon of drawing 17 .
[Drawing 19] It is a flow chart explaining the display action of an icon.
[Drawing 20] It is a flow chart explaining the operation when carrying out click processing of the icon.
[Drawing 21] It is a flow chart explaining the operation when carrying out click processing of the icon.
[Drawing 22] It is a block diagram explaining the configuration of a charged broadcast.
[Drawing 23] It is a flow chart explaining processing of the update of the key of a charged broadcast.
[Drawing 24] It is a flow chart explaining processing which updates the list of cache indexes of the drawing 14 when accessing a message.
[Drawing 25] It is a flow chart explaining the operation at the time of a message reception.
[Drawing 26] It is a flow chart explaining a reference operation.
[Drawing 27] It is a flow chart explaining the operation at the time of a down load.
[Drawing 28] It is a flow chart explaining the operation at the time of a button click of a web page.
[Description of Notations]
11 Broadcast Server

20 Personal Computer
31 WWW Server
41 Tuner
42 Wave Equal Circuit
43 A/D Converter
44 Packet Extractor
45 Program Data Generation Section
46 B-HTTP Service Section
47 Bitcast Browser

[Translation done.]